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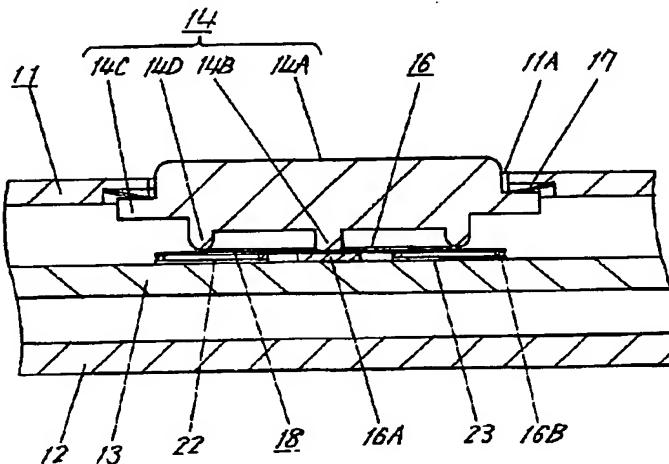
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(81)指定国(国内): CN, DE, US.

[統葉有]

(54) Title: MULTIDIRECTIONAL INPUT DEVICE AND ELECTRONIC APPARATUS COMPRISING IT

(54)発明の名称: 多方向入力装置およびこれを用いた電子機器



(57) Abstract: A multidirectional input signal device is provided on a flexible insulating board (16) and constituted of a circular ringlike resistance element layer (18) having at least a pair of electrodes, first and second arcuate conductor layers (22) and (23) opposed to the latter (18), and an operation knob (14) having a ringlike protrusion (14D) for pressing the resistance element layer (18) to the first or second conductor layer (22) or (23) upon tilt operation. Tilting the operation knob with a predetermined voltage impressed across the electrodes brings the resistance element layer (18) in contact with the first conductor layer (22) or the second conductor layer (23). Thus, an output signal of high resolution with regard to the tilt angle can be generated from the conductor layers. The angle or direction is sensed and recognized by inputting the output signal into a microcomputer to execute arithmetic processing.

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添付公開類:
— 國際調査報告書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

(57) 要約:

本発明の多方向入力信号装置は可撓性絶縁基板16に形成され、少なくとも一組の電極(electrodes)を有する円形リング状の抵抗素子層18と、これに対向して配設された円弧状の第一および第二導電体層22および23と、傾倒操作時に抵抗素子層18を第一または第二導電体層22または23に押し付けるリング状の突出部14Dを有する操作つまみ14から構成される。前記電極間に所定の電圧を印加した状態で、操作つまみを傾倒することにより、抵抗素子層18と、第一導電体層22または第二導電体層2を接触させることにより、前記導電体層から傾倒角度に関する分解能の高い出力信号を得ることができる。前記出力信号をマイコンに入力して、演算処理することにより、角度または方向を検知、認識する。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP01/06623

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl⁷ H01H 25/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ H01H 25/04, G06F3/033Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1940-1996 Toroku Jitsuyo Shinan Koho 1994-2001
Kokai Jitsuyo Shinan Koho 1971-2001 Jitsuyo Shinan Toroku Koho 1996-2001

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 11-126126 A (Fujitsu Limited), 11 May, 1999 (11.05.99), Par. Nos. [0051] to [0056]; Figs. 15 to 18 (Family: none)	1, 7, 12
A		2-6, 8-11, 12-22
X	JP 7-84717 A (Fujitsu Limited), 31 March, 1995 (31.03.95), Par. Nos. [0013] to [0024]; Figs. 1 to 4 (Family: none)	1
A		2-22
A	JP 11-144567 A (Teikoku Tsushin Kogyo Co., Ltd.), 28 May, 1999 (28.05.99), Par. Nos. [0011] to [0028]; Figs. 1 to 4 (Family: none)	5, 6, 10, 11, 17, 21, 22
A	JP 8-6714 A (Hoshiden Corporation), 12 January, 1996 (12.01.96), Par. Nos. [0012] to [0014]; Fig. 1 & EP 640937 A & US 5555004 A & DE 69400854 C	5, 6, 10, 11, 17, 21, 22

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier document but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 30 October, 2001 (30.10.01)	Date of mailing of the international search report 13 November, 2001 (13.11.01)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP01/06623

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 10-12097 A (Fujitsu General Limited), 16 January, 1998 (16.01.98), Par. Nos. [0013] to [0014], [0017] Figs. 1, 4 (Family: none)	16
A	JP 5-324185 A (Brother Industries, Ltd.), 07 December, 1993 (07.12.93), Par. Nos. [0008] to [0033]; Figs. 1 to 7 (Family: none)	19,20
A	JP 6-295641 A (Matsushita Electric Ind. Co., Ltd.), 21 October, 1994 (21.10.94), Par. Nos. [0011] to [0016]; Figs. 1 to 4 (Family: none)	19,20
A	JP 3069727 U (Xīnjù Qǐyè Gütēn Yoūxiān Gōngst), 05 April, 2000 (05.04.00), Par. Nos. [0008] to [0017]; Figs. 1 to 7 (Family: none)	19,20



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP01/06623

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

As described in Box C, Claims 1, 7, 12 do not overcome the prior art.

Claims 1, 7, 12 are not in a technical relationship involving technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art.

Claims 1, 7, 12 and Claims dependent on the corresponding Claims are not in a technical relationship involving technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art.

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

